Porter Ranch Access Road / Twitchell Reservoir Report
Huasna Valley Oil Field

July 2, 2009

Prepared for

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Summary

This report analyzes the potential impacts to the Porter Ranch access road associated with the Twitchell Reservoir and accessibility during heavy rain years. Additionally, this report proposes a clearly defined mitigation measure that will minimize the potential for a conflict regarding project site accessibility. Primary source information on the Twitchell Reservoir was obtained from Christy Griesemer, Santa Maria Valley Water Conservation District, Sandy Nott at Twitchell Reservoir, Darrin Williams, Bureau of Reclamation, and Dennis Gibbs with the Santa Barbara County Public Works Department. Documents used as source information include the Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Maps ("FIRMs") and daily operations records from the Santa Maria Valley Water Conservation District ("SMVWCD"), who manages the Twitchell Reservoir.

Project Description

The applicant, Excelaron LLC, proposes to explore, test and possibly produce oil on approximately 260 acres on the western edge of the Huasna Basin, an existing California Department of Oil, Gas and Geothermal Resources ("CDOGGR") designated oilfield within the Meridian Anticline, an oil bearing geologic structure. Despite previous attempts to produce the field, little is still known about the underlying oil reserves. The project plans to use modern exploration techniques to ascertain if substantial oil reserves exist and determine if long-term production is commercially viable.

All vehicles associated with the site preparation, exploration and production activities will access the project site via State Hwy 166, Alamo Creek Road, existing roads on a private ranch (Porter Ranch access easement), Huasna Townsite Road, and existing roads on a private ranch (Mankins Ranch access easement). These existing roads will require minor grading, the installation of gravel and the application of soil binders/dust suppressants to ensure compliance with all regulatory agency requirements.

Twitchell Reservoir Background

Twitchell Reservoir was one of three water projects along the Central Pacific Coast aimed at capturing and storing floodwaters that would otherwise flow to the ocean. Twitchell Reservoir was constructed by the United States Army Corps of Engineers ("Army Corp") and the Bureau of Reclamation ("BOR") in 1958 on behalf of the Santa Barbara County Water Agency ("SBCWA"). When Twitchell Reservoir was completed, the Santa Maria Valley Water Conservation District ("SMVWCD") became responsible for the reservoir's day-to-day management and operations.

Twitchell Reservoir is designed for the protection of the Santa Maria Valley from flood and drought. The dam catches excess runoff from the Cuyama watershed and stores it in the reservoir. Water is slowly discharged into the Santa Maria River, which serves as the main recharge source for the local aquifer. The aquifer provides water for domestic, commercial and agricultural uses in the Santa Maria Valley.

The Cuyama River, with its principal tributaries Alamo Creek and Huasna River, is the main source of water for Twitchell Reservoir. The drainage basin, comprising approximately 1,135 square miles above Twitchell Dam, lies along the southern boundary of San Luis Obispo County and the northern edge of Santa Barbara County.

Porter Ranch Access Road

The applicant, Excelaron LLC, proposes to establish an oil production facility located in the western hills of the Huasna Valley. The project site can be accessed directly from Huasna Townsite Road via a private easement. In order to detour all construction traffic from using Huasna Road an additional private easement was granted over the Porter Ranch to the south. This easement allows all project related traffic to access Huasna Townsite Road via the following route:

All traffic will travel east on California State Route 166 for approximately 8.3 miles from the intersection of U.S. Route 101 and California State Route 166. Traffic would then turn northerly on Alamo Creek Road for approximately 1.9 miles before turning onto the private access road (Porter Ranch Road). The private access road will use existing dirt roads along the upper reaches of the Twitchell Reservoir to travel 6 miles northwards from Alamo Creek Road to Huasna Townsite Road. Once on Huasna Townsite Road traffic will travel north east for approximately 1.6 miles to the Mankins property access road then to the project site.

Twitchell Reservoir Water Volume Data

Dennis Gibbs, Senior Hydrologist with SBCPW provided background information on Twitchell Reservoir operations. With water conservation a primary focus, the Twitchell Reservoir typically stores all rainwater to enhance groundwater recharge. Once the reservoir's volume reaches an elevation of 623 feet, the Army Corps assumes management of the operations of Twitchell Reservoir in order to control potential flooding.

Sandy Nott, Operations and Maintenance Supervisor at Twitchell Reservoir, is responsible for maintaining daily records of the water surface elevation. Water surface elevations have been recorded at the dam since 1962 and filed under the Twitchell Reservoir Daily Operations. Paper copies of the Twitchell Reservoir Daily Operations are available from the SMVWCD office.

The information contained in the Twitchell Reservoir Daily Operations, dating back to 1962, was obtained from Darrin Williams, Civil Engineer with the Operations Division at the BOR.

Impacts to Porter Ranch Access Roads

In order to analyze potential impacts to the Porter Ranch access roads associated with the Twitchell Reservoir, a baseline elevation was chosen. The baseline elevation is the

elevation at which the surface water level of the Twitchell Reservoir could first impact Porter Ranch roads. Surface water levels at the dam are directly related to surface elevations within the Porter Ranch. The baseline elevation of 599 feet represents the lowest elevation point along the entire Porter Ranch access road. The Porter Ranch has approximately 135 linear feet of road at an elevation of 599 feet. This represents only 0.4% of the total road length. (See Table 1.) Elevation information was obtained directly from aerial survey information prepared by Cannon.

Table 1. Cumulative Distances of Porter Ranch Roads at Different Elevations

	ELEVATION ON PORTER RANCH ROADS (vertical feet)				
	600'	600-605'	600-610'	600-615'	600-620'
LENGTH OF ROAD (LF)	135	930	2170	5820	7750

* Source: Aerial survey information obtained by Cannon

Analyzing Water Surface Level Data

Using the Twitchell Reservoir Daily Operations data, Cannon conducted an analysis to determine the frequency that Twitchell Reservoir's water surface elevation has reached 599 feet. The Twitchell Reservoir Daily Operations data states that the reservoir has reached a surface water elevation of 599 feet during eight separate years since 1962. Table 2 below depicts the eight years in which Twitchell Reservoir has filled above elevation 599 feet and details the duration of those events. In the years in which a water surface elevation of 599 feet was reached, all but one event had a reservoir volume over 599 feet for an extended period of days. (See Table 2) When the water surface elevation is below 623 feet, the dam operates with a priority to recharge the aquifer. Subsequently this means that water is normally stored and released very slowly. If the water surface level is below 623 feet, but above 599 feet, the duration of time that the reservoir will remain above 599 feet is entirely dependent on the Twitchell Reservoir's ground water recharge operations.

Table 2. Twitchell Reservoir Water Surface Levels in Excess of 599' Since 1962

TOTAL DAYS WATER WAS ABOVE GIVEN ELEVATION									
		May	Feb.-Oct.	Mar.-Sept.	Mar.-Feb.	Apr.-July	Mar.-Sept.	Feb.-Mar.	Feb.-Dec.
		1967	1969	1978	1983-1984	1993	1995	1997	1998
ELEVATION	600	8	235	199	343	107	186	51	312
	605	0	210	176	267	0	171	0	288
	610	0	176	154	245	0	156	0	265
	615	0	152	130	226	0	138	0	238
	620	0	126	100	207	0	112	0	219
	625	0	64	35	174	0	26	0	175
	630	0	0	0	140	0	0	0	129
	635	0	0	0	109	0	0	0	30
	640	0	0	0	61	0	0	0	0

* Source: Twitchell Reservoir Daily Operations received from Christy Griesemer (SMVWCD)

Potentially Significant Impacts

When Twitchell Reservoir receives runoff to reach a water surface elevation of 599 feet or above, the potential to impact project related traffic on the Porter Ranch access road becomes significant. Additionally, in the years in which the surface water reaches 599 feet, reservoir volume has increased beyond the established baseline elevation and remained there for a period of time. (See Table 2) During these events, the Porter Ranch road will be impassable for an indeterminate period of time, thereby potentially prohibiting access to the project site.

Mitigation

A baseline elevation of 599 feet has been established to delineate the lowest point along the Porter Ranch access road that could potentially be impacted by the Twitchell Reservoir during a heavy rain year. Table 2 above shows that when the water surface exceeds 599 feet historically it has stayed above that elevation for an average of 180 days, ranging from 8 to 343 days. Since the goal to lessen the potential impacts of project related traffic during these events the following mitigation measure is proposed.

- Water surface elevation measurements on Twitchell Reservoir are obtained daily. During periods of consistent storms or heavy rainfall, during the months of February through May, Excelaron, LLC will be responsible for monitoring the reservoir water surface level elevation on a daily basis. Monitoring will be accomplished through direct communication with staff at the Twitchell Reservoir. Visual inspection of the access road will also be conducted on a daily basis. As the reservoir's water surface approaches the 599-foot elevation, preparation for the following measures shall be implemented at the project's facility site. All wells will be shut in and sealed at the wellhead.
- Any stored oil will be transported off site prior to road closure.
- All tank contents will be drained and the facility will cease operation.
- All employees and contractors will be placed on notice of the above-mentioned conditions.

If and when Twitchell's water surface level reaches above the 599-foot elevation, any project related traffic will cease along the Porter Ranch access road and operations will be temporarily shut in. Shutting in the facility would eliminate the necessity for regular project related traffic during that period of time. Operation of the facility and access to the site would remain closed until the following has been completed.

- The water surface elevation of the Twitchell Reservoir recedes below elevation 599'.
- A thorough inspection of the Porter Ranch access roads has been made and any deficiencies identified.
- The proper repairs have been made to any deficiencies.

Figure 1 identifies Porter Ranch Road and specifically notes elevation 599'. The additional large-scale drawings depict different storm events over the past 40+ years and their relationship to the Porter Ranch access road.

Based on the existing data and the proposed mitigation measures, Cannon believes that potential impacts along the Porter Ranch access road resulting from the Twitchell Reservoir can be mitigated to a less than significant level.

Engineer Statement

Based on our current understanding of the project requirements for the Porter Ranch Access Road, I concur with the recommendations described in this report.

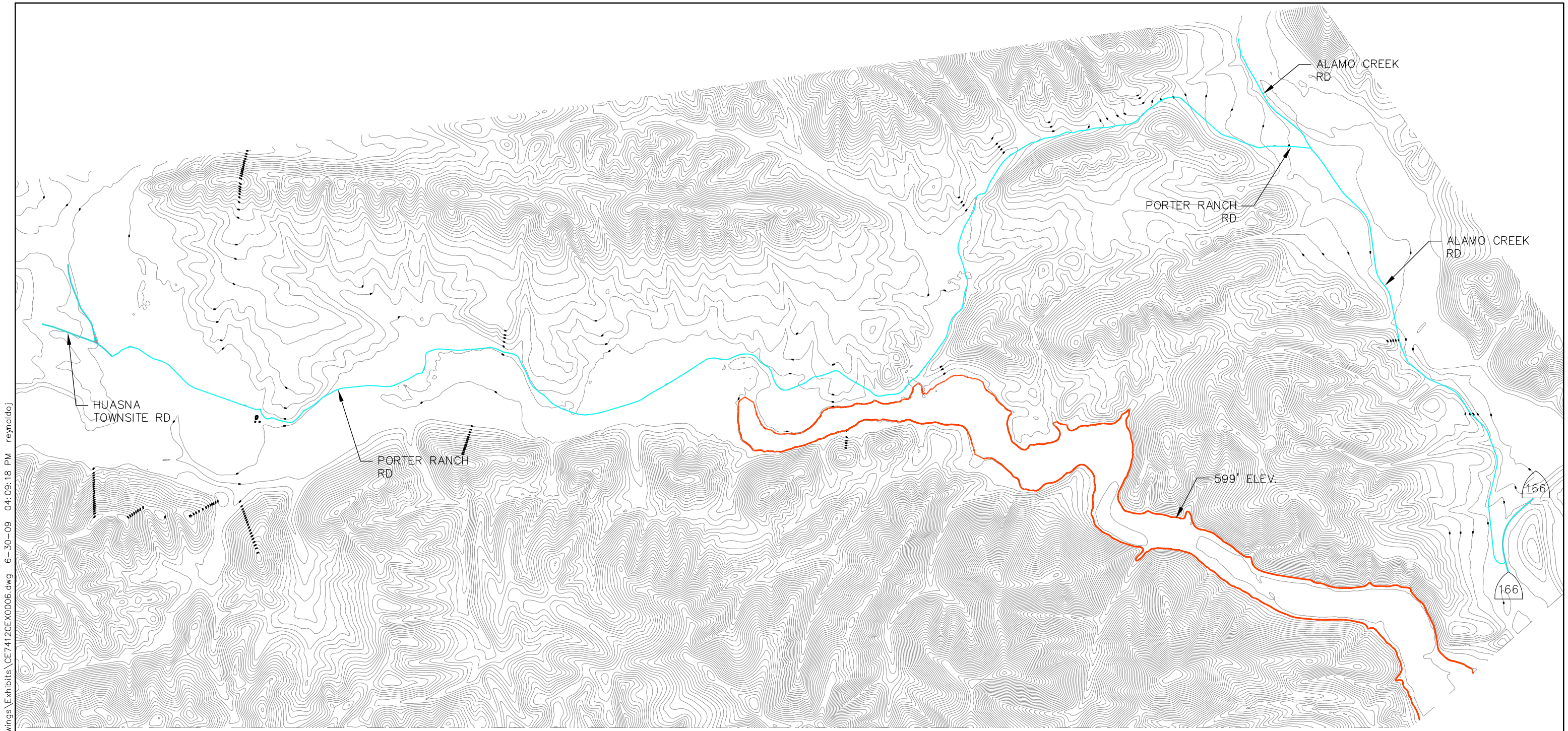
David W. Chanley
Name of Registered Professional Engineer

Signature of Registered Professional Engineer

70849 — Registration Number

CA — State

7-16-09
Date



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1 INCH = 2000 FEET

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TWITCHELL RESERVOIR HISTORIC WATER ELEVATION
FIGURE 1
HUASNA VALLEY, CALIFORNIA

DRAWN BY	DATE	CA JOB NO.
RJ	06-17-09	070412
CHECKED BY	SCALE	SHEET
	1" = 2000'	1 OF 1

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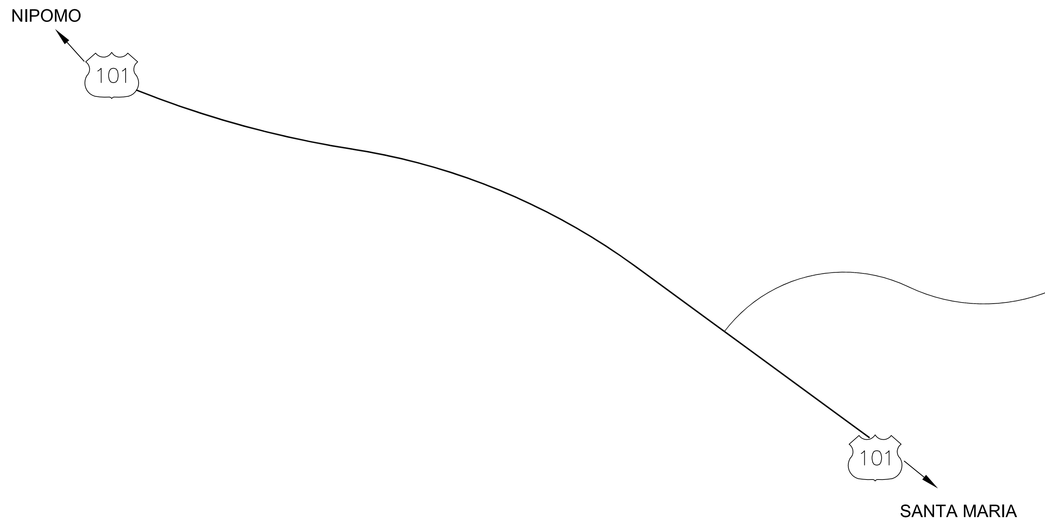
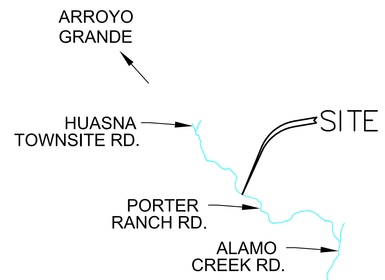
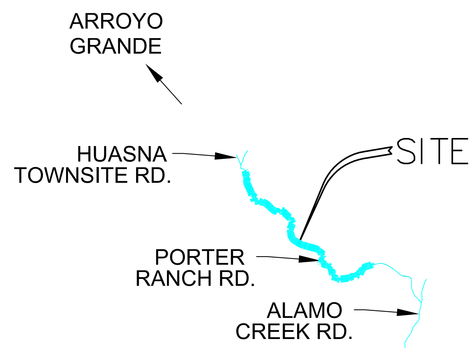
HUASNA VALLEY
SAN LUIS OBISPO COUNTY
PORTER RANCH ROAD

CALIFORNIA
AREA MAP
SCALE : NONE



VICINITY MAP
NTS





SITE MAP
NTS

SHEET INDEX		
SHEET NO.	REV	DESCRIPTION
1	0	TITLE SHEET
2	0	PORTER RANCH RD. EXHIBIT 1
3	0	PORTER RANCH RD. EXHIBIT 2
4	0	PORTER RANCH RD. EXHIBIT 3

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FIGURE 2
TWITCHELL RESERVOIR HISTORIC WATER ELELVATION
PORTER RANCH ROAD
HUASNA VALLEY, CALIFORNIA

DRAWN BY	DATE	CA JOB NO.
RJ	06/18/09	070412
CHECKED BY	SCALE	SHEET
	NTS	1 OF 4

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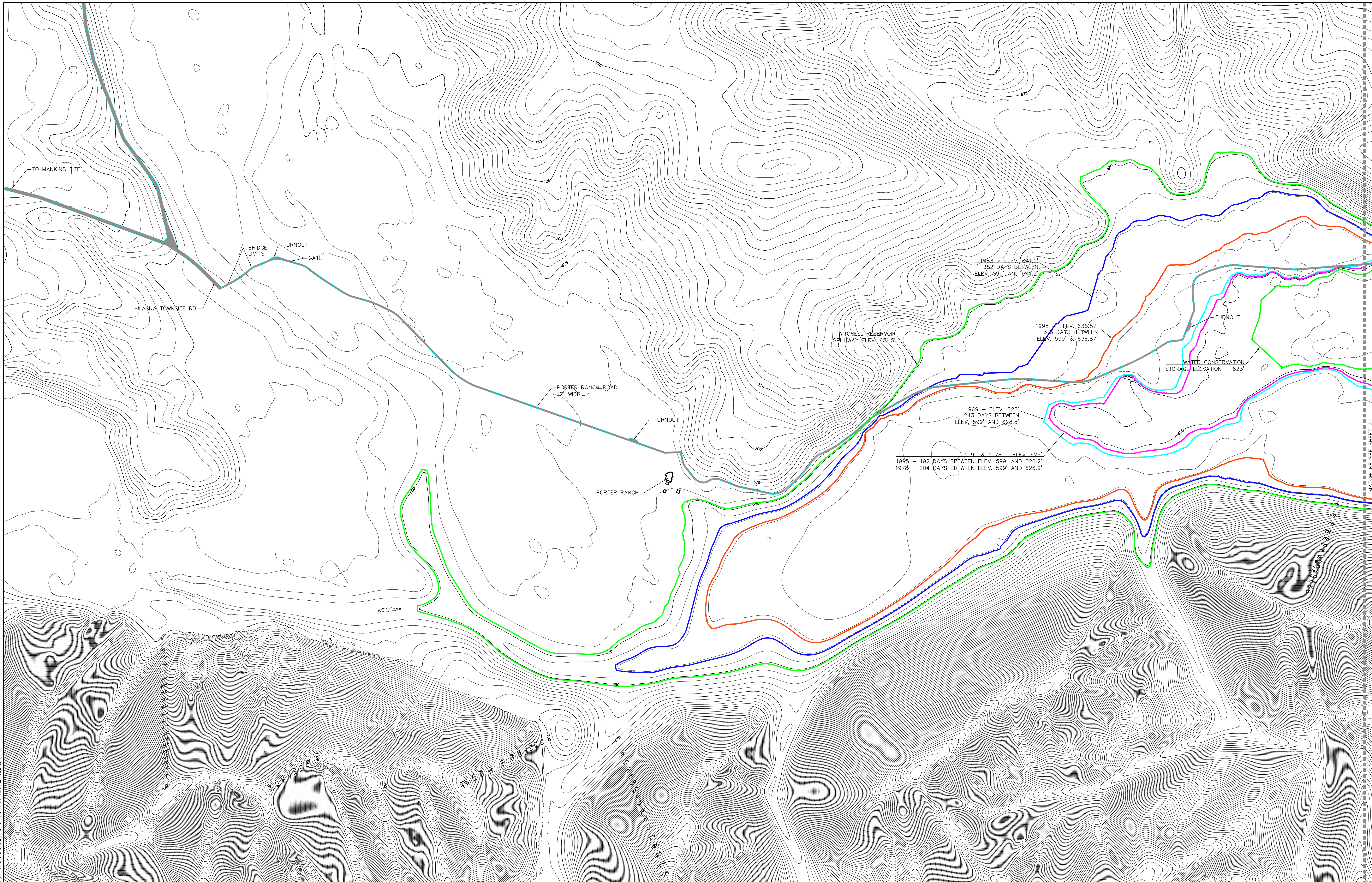

TOTAL DAYS WATER WAS ABOVE GIVEN ELEVATION

		May 1967	Feb.-Oct. 1969	Mar.-Sept. 1978	Mar.-Feb. 1983-1984	Apr.-July 1993	Mar.-Sept. 1995	Feb.-Mar. 1997	Feb.-Dec. 1998
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REV. NO	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CKD. BY	APPD. BY

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TWITCHELL RESERVOIR HISTORIC WATER ELELVATION
PORTER RANCH ROAD
HUASNA VALLEY, CALIFORNIA

DRAWN BY	DATE	CA JOB NO.
DWC	06/05/2009	070412
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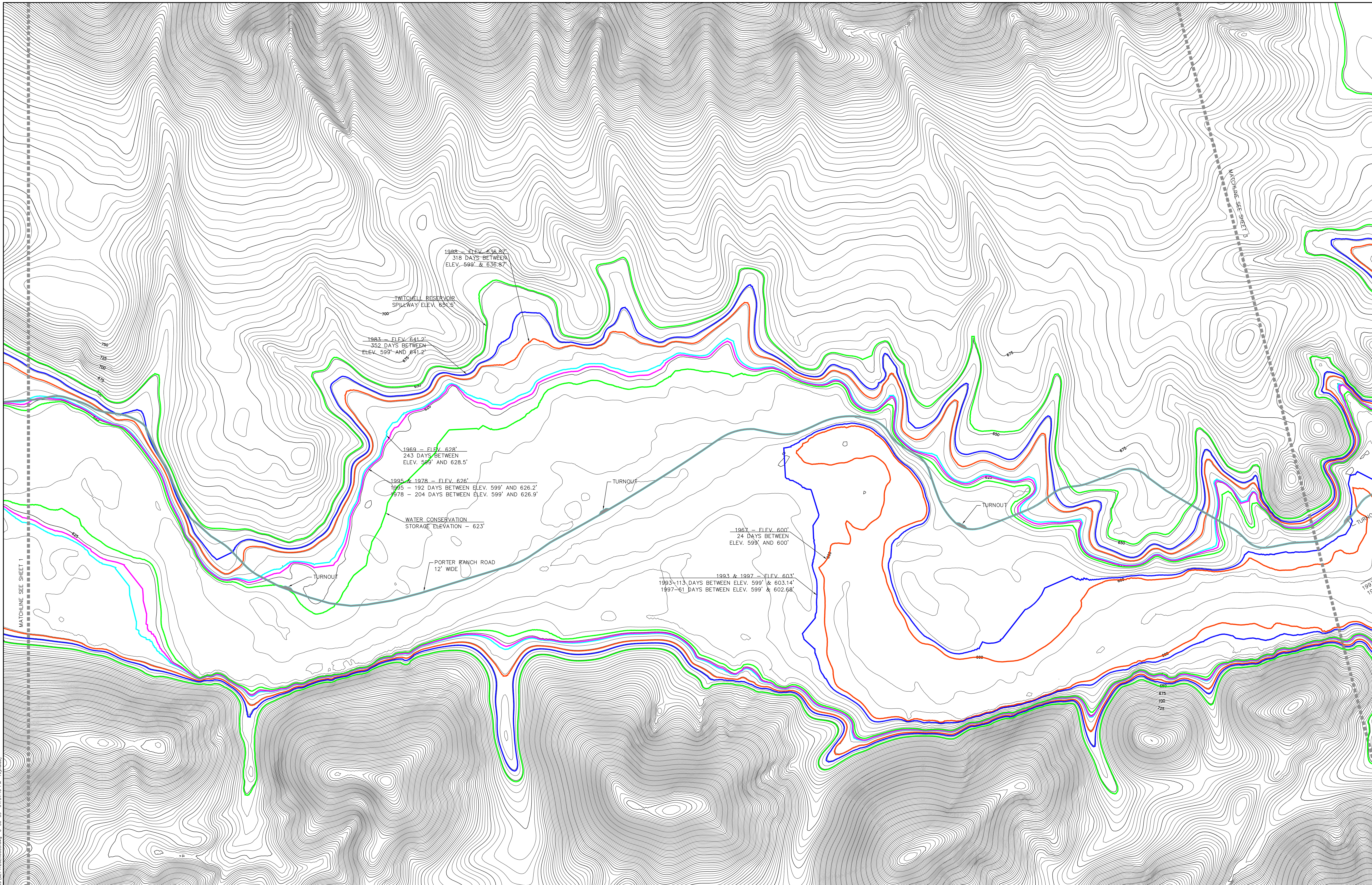

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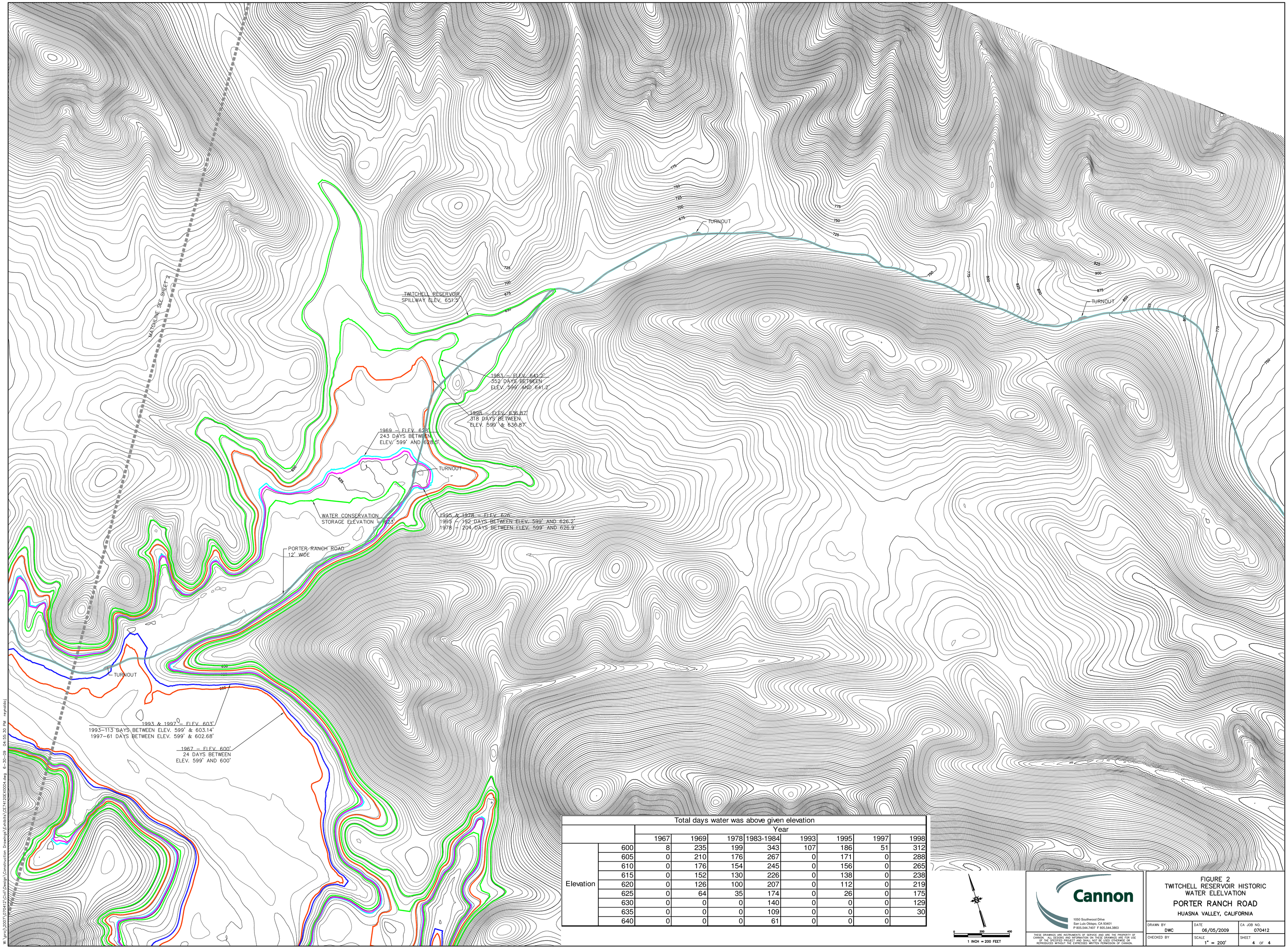

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CHECKED BY	SCALE	SHEET
	1" = 200'	4 OF 4